



October 17, 2024

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Ms. Laurie Gharis
Office of the Chief Clerk (MC 105)
Texas Commission on Environmental Quality
PO Box 13087
Austin, Texas 78711-3087

Re: TCEQ Texas Pollution Discharge Elimination System (TPDES) Permit No.
WQ0005462000

Dear Ms. Gharis:

Texas Parks and Wildlife Department (TPWD) appreciates the opportunity to comment on the proposed new Texas Pollution Discharge Elimination System (TPDES) permit application for Space Exploration Technologies Corporation ("SpaceX" thus forth; WQ0005462000). TPWD is the agency with primary responsibility for protecting the state's fish and wildlife resources (Texas Parks and Wildlife Code Section 12.0011(a)). Furthermore, TPWD is charged with providing information on fish and wildlife resources to any local, state, or federal agency or private organization that make decisions affecting those resources (Texas Parks and Wildlife Code §12.0011(b)(3)). Please be aware that a written response to this comment letter is required by Texas Parks and Wildlife Code Section 12.0011(c)-(d).

TPWD has reviewed the pending Texas Pollutant Discharge Elimination System (TPDES) wastewater discharge permit application for SpaceX to discharge deluge water at an intermittent and variable volume onto the mudflats south of the launchpad thence into the Rio Grande River (Segment 2301) in Cameron County. The proposed final effluent limits for this facility are to report daily average in milligrams per liter the following characteristics and constituents: Flow (million gallons per day), chemical oxygen demand, oil and grease, temperature (Fahrenheit), total copper, total mercury, total thallium, and total zinc.

The discharge route for the proposed deluge water would discharge onto mudflats that are on or adjacent to public lands owned by TPWD and would then flow through the Lower Rio Grande National Wildlife Refuge to reach the Rio Grande River. The 1,055 acres of public lands owned by TPWD were acquired in 1994 to provide conservation

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and low-impact, year-round public access to marshes, flats, and the Gulf of Mexico. TPWD has significant concerns about the impacts of the discharge route on Boca Chica State Park, including potential impacts to recreational use in the park.

Additionally, the applicant has not coordinated with TPWD about this proposed discharge, and TPWD has not received a request to grant an easement or other authorization for the discharge route across TPWD property. Unlike a discharge to a watercourse with defined beds and banks, the draft permit does not provide authority for the applicant to discharge effluent as sheet flow onto TPWD property. The USGS topographic map of the discharge route included with the application appears to show discharge flowing into portions of TPWD land that are not wetlands. In essence, the draft permit appears to allow land application of effluent with no pollution controls onto public land not owned or controlled by the applicant. TPWD is concerned that TCEQ would authorize a discharge directly into a state park without any agency coordination.

The habitats of the Lower Rio Grande Valley (LRGV) tidal flats are unique, consisting of diverse communities of fish and wildlife, some of which consist of state or federal-listed threatened and endangered species. When tidal flats are inundated, they generally provide escape and forage habitat for juvenile fish and forage habitat for long legged shorebirds and wading birds, including state-listed threatened species, such as reddish egret (*Egretta rufescens*) and wood stork (*Mycteria americana*). As the waters recede, the exposed flats generally provide important feeding grounds to short legged shorebirds and are critically important to state and federal threatened species, such as piping plover (*Charadrius melodus*) and rufa red knot (*Calidris canutus rufa*). Where algal mats are present, additional functions include nitrogen fixation and sediment stabilization as well as providing a direct source of food for certain species of sandpipers which are biofilm grazers. Mudflats located within 500 feet of Launch Tower 1, as referenced in the description of Outfall 001, provide nesting habitat to non-game shorebirds, including snowy plover (*Charadrius alexandrinus*), Wilson's plover (*Charadrius wilsonia*) and least tern (*Sterna antillarum*). Due to the ecological importance of this unique area, the U.S. Environmental Protection Agency has identified waters in this region as aquatic resources of national importance (ARNI) and U.S. Fish and Wildlife Service (USFWS) has designated this area as critical habitat for piping plover (Unit TX-1; USFWS, 2009) and as proposed critical habitat for rufa red knot (Unit TX-11; USFWS, 2023). The undeveloped upland areas surrounding South Bay are also comprised of native coastal prairie, deep sand grasslands, and Tamaulipan thornscrub also provide suitable habitat for state and federally listed endangered species, including northern aplomado falcon (*Falco femoralis septentrionalis*) and ocelot (*Leopardus pardalis*).

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SpaceX has proposed 25 launches per year (not including pre-flight operations such as static fire tests) where deluge water will be used. Regular discharge of fresh water through the proposed outfalls has the potential to damage or permanently change the nature of the tidal flats. The tidal flat system occurs on flat areas that are influenced by tidal fluctuations in water level. The regular addition of freshwater to these tidal flats could alter the salinity regime and create channels as the discharged effluent flows towards the Rio Grande. Salinity is one of the factors that plays a role in maintaining the lack of emergent vegetation in these tidal flats. Changes in salinity and hydrology could alter the existing algal and vegetation communities that are part of the designated critical habitat of the piping plover and important habitat for other shorebirds. In addition to the potential effects to the tidal flats from the flushing of freshwater are the constituents in the discharge. The Federal Aviation Administration (FAA) document entitled "Written Re-Evaluation of the 2022 Final Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the Boca Chica Launch Site in Cameron County, Texas" (Written Re-Evaluation) states that as much as 190 pounds of steel per launch could be ablated ("eroded") as a result of the heat and force from the rocket engines. Worksheet 2.0: Pollutant Analysis in the permit application shows the results of chemical analyses for a number of different constituents including total copper (9.49 µg/L), hexavalent chromium (25.9 µg/L), total mercury (113 µg/L), total zinc (1,420 µg/L), and the temperature of the water (38 C). These constituents have the potential to adhere to sediments along the discharge route and bioaccumulate to larger organisms such as fish and birds.

The aforementioned Written Re-Evaluation states that the deluge system and fire suppression system could use a combined maximum volume of 361,000 gallons of water. The permit application states that the retention ponds for each launch mount and deluge system would hold 273,000 gallons of water. TPWD acknowledges that much of the water released through the deluge system would evaporate. TPWD also understands that an amount of water is sprayed onto the mudflats during the release of deluge water. TPWD would like to know how much water bypasses the outfalls during launches and static fire tests.

Recommendation: To protect against impacts related to changes in the habitat of the mudflats and contamination TPWD recommends that SpaceX construct retention ponds that would hold the combined maximum volume of 361,000 gallons of water to protect against accidental releases.

Recommendation: TPWD recommends that SpaceX seek a 210 Beneficial Re-Use Authorization from the TCEQ and to reuse all stormwater and deluge waters instead of discharging.

The permit application states under Item 3 (related to impoundments) of the Technical Report that the retention pond bottom is below the seasonal high-water

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table and that the pond has no liner or leak detection system. TPWD is concerned that the used deluge water in the retention ponds might leach into the nearby water table and contaminate designated critical piping plover habitat.

Recommendation: TPWD recommends lining the pond with material sufficient to protect nearby groundwater and associated habitat and to install a leak detection system.

The permit application states under Items 5 and 12 (related to cooling water discharges) of the Technical Report that the facility does not discharge once-through cooling water. TPWD acknowledges that SpaceX will not be using water for traditional once-through cooling but that the water is used to cool the launch pads. If the facility will be using water for cooling purposes the TCEQ requires the applicant to identify the source of the water. TPWD acknowledges that source of the deluge water is from a municipality but would like to know if the water is reclaimed or from the municipal drinking water supply

Recommendation: TPWD recommends that the applicant identify the source of the reclaimed water used for cooling purposes and follow the abovementioned recommendations related to retention ponds to protect against known or unknown contaminants.

TPWD requests that these comments be considered with respect to this draft permit. We appreciate the opportunity to offer comment and will continue to work with the TCEQ, the applicant, and other stakeholders to conserve and protect valued freshwater, estuarine, and marine resources along the Texas coastline. If you should have any questions or need more information, please contact me by email at marty.kelly@tpwd.texas.gov or by phone at (512) 389-8214.

Sincerely,



Marty Kelly
Water Resources Program Coordinator

MK:dh

cc: David Yoskowitz, Ph.D.
Mr. Craig Bonds
Mr. Robin Riechers

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References

United States Fish and Wildlife Service, 2009. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Wintering Population of Piping Plover (*Charadrius melodius*) in Texas. Federal Register (74): 23,476 – 23,600.

United States Fish and Wildlife Service, 2023. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Rufa Red Knot. Federal Register (88): 22530 –22693.